

REMARKS

Claims 1-24, 35-36, 41, 45-62, and 67-71 re canceled.

Claims 25-34, 37-40, 42-44, 63-66 and 72 are pending.

Claims 25-34, 37-40, 42-44, 63-66 and 72 are rejected.

Claims 43-44 and 63-66 have been canceled.

Claim 72 has been amended for clarity. Amended claim 72 recites a method for preparing surfaces of a metal foil. The method comprises:

performing grit blasting to remove oxide from surfaces of the foil;

hydrolyzing the grit-blasted surfaces of the foil to form oxy-hydroxide layers; and

forming a sol gel coating on the oxy-hydroxide layers, wherein the hydrolyzed surfaces improve chemical bonding to the sol gel coating.

The office action rejects claim 72 under the first paragraph of 35 USC §112 for not complying with the written description requirement. The office action alleges that the specification does not provide support or show that the oxy-hydroxide layer is still present after a rinsing step and prior to the formation of a sol-gel coating. We respectfully disagree.

Attention is directed to page 4, lines 15-23 of the application, which discloses that the grit-blasted surface is hydrolyzed by applying caustic solution at elevated temperature (e.g., between 150°F and 220°F). "The purpose of the caustic conditioner is to form a controlled layer of metal-hydroxide on both surfaces of material 14. The oxy-hydroxide layer is needed for sufficient chemical bonding to the subsequent sol-gel coating in the chamber 54." (A subsequent rinsing step washes off remaining caustic solution, not the hydrolyzed surface.) Not only does the specification disclose the formation of an oxy-hydroxide layer, it also discloses the criticality of the oxy-hydroxide layer. Therefore, the '112 rejection should be withdrawn.

No other rejections of claim 72 have been made. The cited documents do not teach or suggest hydrolyzing the grit-blasted surface of a metal foil. Zheng discloses applying a solution of 10% sodium hydroxide (col. 7, lines 15-17), but only to clean a surface of a substrate. Zheng is silent about re-hydrolyzing the surface of the substrate.

Moreover, the documents made of record do not teach or suggest grit blasting a foil surface to remove oxide in preparation for hydrolyzing. The office action cites a passage at col. 2, lines 17-19 of Vaughn U.S. Patent No; 3,967,091. However, that passage is silent about grit blasting. Vaughn discloses that titanium surfaces are cleaned prior to spot welding. The cleaning involves degreasing and applying a varnish that includes aluminum powder. The aluminum powder reduces the flow of resin during heating. Col. 4, lines 34-39 of Vaughn discloses that faying surfaces of titanium test panels are grit blasted prior to spot welding, but does not teach or suggest grit blasting of thin foil prior to hydrolyzing and sol-gel coating.

Claim 27 has been amended to recite that the caustic solution is applied at an elevated temperature that hydrolyzes the grit-blasted surface of the metal foil.

Claims 73 and 74 are new. Claim 73 recites that an adhesive coating is applied to the sol-gel coating (this subject matter was moved from claim 72).

Claim 74, which depends from claim 73, recites that the grit blasting, hydrolyzing, coating and adhesive-applying are performed by transporting the foil through a grit blasting line, a sol-gel coating line, and an adhesive coating line whereby surface preparation of the metal foil is continuous (support for this amendment can be found on page 3, first paragraph of the Detailed Description). The applicants have recognized that the process of claim 72 can be adapted to a manufacturing line for the continuous preparation of metal foils. The documents made of record do not recognize this. Therefore, new claim 74 should be allowable over cited documents.

Claims 37-40 and 42 have been amended to depend from new claim 73 instead of base claim 72.

The Examiner is strongly encouraged to contact the undersigned to discuss any remaining issues before mailing another office action.

Respectfully submitted,

/Hugh Gortler #33,890/
Hugh P. Gortler
Reg. No. 33,890
(949) 454-0898

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